

Art Unit: 2829
SN: 10/027,146

REMARKS

A. Rejections Under 35 U.S.C. § 102(b)

The Examiner rejected claims 4, 9, and 11 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,144,212, issued to Mizuta.

Mizuta teaches a vertical needle type probe card, which includes probe needles having raised portions that are formed from mechanical processes, e.g., stopper portion 4d, which is formed by bending the needle (see column 7, lines 32-35).

In direct contrast, a micro probe according to the present invention includes raised portions that are formed from non-mechanical processes. By the amendments made above, independent claims 4 and 9 are now limited to micro probes including one or more raised surfaces that are not formed from mechanical processes. Support for these amendments is found in FIGS. 7, 8, and 12 of the present application. The non-mechanically formed raised surfaces of the present invention result in a micro probe that has less residual stress. In addition, more intricate raised surface portions may be constructed to facilitate installation of micro probes in multi-layer probe test heads.

Because Mizuta fails to teach or suggest a micro probe including one or more raised surfaces that are not formed from mechanical processes, claims 4, 9, and claim 11, which depends from claim 9, are now believed to be in condition for allowance. In addition, new claim 15, which depends from claim 9, is also believed to be in condition for allowance for the same reasons.

B. Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 5-8 and 12-14 under 35 U.S.C. § 103(a) as obvious over the Mizuta reference in view of obvious design choices.

As explained above, independent claims 4 and 9 are now believed to be in condition for allowance. For at least the same reasons, claims 5-8 and 12-14, which depend from claims 4 and 9, respectively, are also believed to be in condition for allowance.

Art Unit: 2829
SN: 10/027,146

C. Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-3 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,448,506, issued to Glenn et al. in view of Japanese Patent No. JP03062546A, issued to Kato et al.

By the amendments made to claim 1 above, the present invention teaches a method of fabricating a plurality of micro probes, which includes providing one or more probe-shaped masks each having a probe base, a probe shaft connected to the probe base, a probe end connected to the probe shaft, and one or more raised surfaces on at least one of the probe base, the probe end, and the probe shaft. The amendments made to claim 1 are supported by FIGS. 7, 8, and 12 and are not believed to contain new matter.

Glenn teaches the use of photolithography and etching in the fabrication of circuit boards. As the Examiner noted in the Office Action mailed September 8, 2004, Glenn fails to teach or suggest one or more masks including a plurality of probe shapes. In addition, Glenn is not even related to the manufacture of probes.

The Examiner cites Kato as having taught one or more masks including a plurality of probe shapes. However, the Applicants respectfully disagree with the Examiner's finding regarding Kato. In Kato, the probe shapes are developed in a multi-stage process as illustrated in FIGS. 3a-3k and described at pages 5 and 6 of the specification, which was not clear from a review of only the abstract (see attached translated specification). In Kato, probe-shaped grooves are formed and then filled with a tungsten material. Photoresist is then used as a "mask" to refine the tips of the previously formed probe shapes. As a result, the masks in Kato are not probe-shaped. Accordingly, the combination of Glenn and Kato do not teach or suggest a method of fabricating a plurality of micro probes, which includes providing one or more probe-shaped masks. Therefore, claim 1 is believed to be in condition for allowance. Claim 3 has been canceled thereby obviating its rejection and because claim 2 depends from claim 1, for at least the same reasons claim 1 is believed to be in condition for allowance, claim 2 is believed to be in condition for allowance.

In addition, the combination of Glenn and Kato fails to teach or suggest a micro probe including one or more raised surfaces, as included in claim 1 as amended above. Therefore,

Art Unit: 2829
SN: 10/027,146

claim 1 and claim 2 are also believed to be in condition for allowance due to this additional limitation.

D. Summary

In the present Office Action, claims 1-9 and 11-14 were examined. Claims 1-9 and 11-14 are rejected, no claims are objected to, and no claims are allowed.

By this Amendment, claims 1, 4, and 9 are amended, claims 3 and 10 are cancelled, and new claim 15 has been added. Accordingly, claims 1, 2, 4-9, and 11-15 are presented for further examination. No new matter has been added. By this Amendment, claims 1, 2, 4-9, and 11-15 are believed to be in condition for allowance.

Accordingly, Applicant submits that none of the references, alone or in combination, anticipates or makes obvious the invention as presently claimed and that the application is now in condition for allowance. Therefore, Applicant respectfully requests reconsideration and further examination of the application and the Examiner is respectfully requested to take such proper actions so that a patent will issue herefrom as soon as possible.

If the Examiner has any questions or believes that a discussion with Applicant's attorney would expedite prosecution, the Examiner is invited and encouraged to contact the undersigned at the telephone number below.


Please apply any credits or charge any deficiencies to our Deposit Account No. 23-1665.

Respectfully submitted,

Francis T. McQuade, et al.

Date: December 7, 2004

Reg. No. 42,565


Signature of Attorney
Anthony P. Gangemi
Wiggin and Dana LLP
One Century Tower
New Haven, CT 06508-1832
Telephone: (203) 498-4395
Facsimile: (203) 782-2889

\\14685121503491.1

- (19) JAPANESE PATENT OFFICE (JP)
(11) Unexamined Patent Application (Kokai) No. Hei 3[1991]-62546
(12) Unexamined Patent Gazette (A)

(51)	<u>Int. Cl.⁵:</u>	<u>Classification Symbols:</u>	<u>Internal Filing Nos.:</u>
	H 01 L 21/66	C	7013-5F
		B	7013-5F

(43) Publication Date: March 18, 1991
Request for Examination: Not yet submitted
Number of Claims: 2
(Total pages: 5)

(54) Title of the Invention: Scanning Probe and Manufacture of the Same

(21) Application No. Hei 1[1989]-196,614

(22) Filing Date: July 31, 1989

(72) Inventor: Yoshihide Kato
Toshiba Corp. General Research Center
1 Toshiba-machi, Komuki, Saiwai-ku, Kawasaki-shi, Kanagawa-ken

(72) Inventor: Kazuyoshi Sugihara
same address

(71) Applicant: Toshiba Corp.
72 Horikawa-machi, Saiwai-ku, Kawasaki-shi, Kanagawa-ken

(74) Agent: Kamiteru Inomata, Patent Attorney (and 1 other)